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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,760	12/27/2001	Byoung Ho Lim	049128-5053	9786

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EXAMINER

LANDAU, MATTHEW C

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,760

Applicant(s)

LIM, BYOUNG HO

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

Claims 5, 6, 9, 18, and 19 are objected to because of the following informalities:

In regards to claim 5, the limitation "formed of a transparent conductive material including indium-tin-oxide (ITO), indium-zinc-oxide (IZO), and indium-tin-zinc-oxide (ITZO)" is unclear. Does applicant intend to claim a transparent conductive material made of all three materials"? It is suggested the limitation be changed to read "...including one of indium-tin-oxide (ITO)...". Note claims 6, 18, and 19 have similar problems.

In regards to claim 9, it is unclear what is meant by parallel and inclined surfaces. Parallel to what? It is also unclear how the pixel electrode contacts the drain electrode.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1, 3-10, 12-14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yuuki et al. (US Pat. 6,108,063, hereinafter Yuuki).

In regards to claims 1 and 3, Figure 3 of this instant application discloses a method of fabricating a liquid crystal display panel, comprising the steps of: preparing an upper substrate 28 and a lower substrate 18; and bonding the upper substrate to the lower substrate. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates. Yuuki discloses a method of fabricating a liquid crystal display (LCD) panel including wet-etching the outer surface of an upper substrate 1 and a lower substrate 2 (column 4, lines 36-62). Since the substrates are sprayed with a liquid etchant, it is considered the exposed surfaces are cleaned prior to being removed by the etchant. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Yuuki for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

In regards to claim 4, Figures 2A-2F of the instant application disclose the steps of: forming a thin film transistor on the lower substrate 18; forming a protective layer 25 on the lower substrate; and forming a pixel electrode 12 on the protective layer to electrically contact the thin film transistor.

In regards to claim 5, the admitted prior art discloses the pixel electrode 12 is formed of indium-tin-oxide (page 5, para. [0013] of the instant application).

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In regards to claim 6, the admitted prior art discloses the protective layer 25 is formed of an acrylic organic compound (page 5, para [0011]).

In regards to claim 7, Figures 2A-2C of the instant application disclose the step of forming the thin film transistor includes: forming a gate electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer.

In regards to claim 8, Figure 2C of the instant application discloses the source electrode 13 and drain electrode 11 contact the gate insulating film.

In regards to claim 9, Figure 2F of the instant application discloses the pixel electrode 12 contacts parallel and inclined surfaces of the drain electrode 11.

In regards to claims 10 and 12, Figure 3 of this instant application discloses a method of fabricating a liquid crystal display panel, comprising the steps of: bonding an upper substrate 28 to a lower substrate 18. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates. Yuuki discloses a method of fabricating a liquid crystal display (LCD) panel including wet-etching the outer surface of and upper substrate 1 and a lower substrate 2 (column 4, lines 36-62). Since the substrates are sprayed with a liquid etchant, it is considered the exposed surfaces are cleaned prior to being removed by the etchant. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted

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prior art by using the etching process of Yuuki for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

In regards to claim 13, it is further obvious in the invention of the admitted prior art and Yuuki to have the exposed surfaces uniformly reduced in thickness as taught by Yuuki (column 5, lines 3-9) for the purpose of obtaining a smooth surface to which a polarization sheet can be applied.

In regards to claim 14 and 16, Figures 2A-2F and Figure 3 of the instant application disclose a method of fabricating a liquid crystal display panel, comprising the steps of: forming a gate electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer; and bonding an upper substrate 28 to a lower substrate 18. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates. Yuuki discloses a method of fabricating a liquid crystal display (LCD) panel including wet-etching the outer surface of an upper substrate 1 and a lower substrate 2 (column 4, lines 36-62). Since the substrates are sprayed with a liquid etchant, it is considered the exposed surfaces are cleaned prior to being removed by the etchant. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Yuuki for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

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In regards to claim 17, Figures 2D-2F of the instant application disclose the steps of: forming a protective layer 25 on the lower substrate; and forming a pixel electrode 12 on the protective layer to electrically contact the drain electrode 11.

In regards to claim 18, the admitted prior art discloses the pixel electrode 12 is formed of indium-tin-oxide (page 5, para. [0013] of the instant application).

In regards to claim 19, the admitted prior art discloses the protective layer 25 is formed of an acrylic organic compound (page 5, para [0011]).

In regards to claim 20, it is further obvious in the invention of the admitted prior art and Yuuki to have the exposed surfaces uniformly reduced in thickness as taught by Yuuki (column 5, lines 3-9) for the purpose of obtaining a smooth surface to which a polarization sheet can be applied.

Claims 1, 2, 10, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Takahashi.

In regards to claims 1 and 2, Figure 3 of this instant application discloses a method of fabricating a liquid crystal display panel, comprising the steps of: preparing an upper substrate 28 and a lower substrate 18; and bonding the upper substrate to the lower substrate. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates, wherein the cleaning step includes dry etching. Figure 1 of Takahashi discloses a method of making an LCD panel including etching the exposed

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surfaces of upper and lower glass substrates (11 and 12). Takahashi discloses the etching can be dry etching (page 6, para. [0054] of the English translation provided). It is considered that any etching technique must in some way clean the exposed surfaces. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Takahashi for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

In regards to claims 10 and 11, Figure 3 of this instant application discloses a method of fabricating a liquid crystal display panel, comprising the step of bonding an upper substrate 28 to a lower substrate 18. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates, wherein the cleaning step includes dry etching. Figure 1 of Takahashi discloses a method of making an LCD panel including etching the exposed surfaces of upper and lower glass substrates (11 and 12). Takahashi discloses the etching can be dry etching (page 6, para. [0054] of the English translation provided). It is considered that any etching technique must in some way clean the exposed surfaces. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Takahashi for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

In regards to claim 14 and 15, Figures 2A-2F and Figure 3 of the instant application disclose a method of fabricating a liquid crystal display panel, comprising the steps of: forming a gate electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower

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substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer; and bonding an upper substrate 28 to a lower substrate 18. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates; and eliminating the exposed surfaces of the bonded upper and lower substrates, wherein the cleaning step includes dry etching. Figure 1 of Takahashi discloses a method of making an LCD panel including etching the exposed surfaces of upper and lower glass substrates (11 and 12). Takahashi discloses the etching can be dry etching (page 6, para. [0054] of the English translation provided). It is considered that any etching technique must in some way clean the exposed surfaces. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Takahashi for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Matsushima discloses a method reducing the thickness of LCD substrates by wet etching.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

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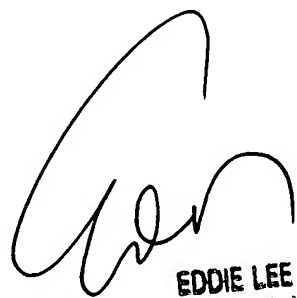
The examiner can normally be reached from 8:00 AM-4: 30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Matthew C. Landau

Examiner

March 9, 2003



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800